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(54) Title: CHROMIUM OXIDE COMPOSITIONS CONTAINING ZINC, THEIR PREPARATION, AND THEIR USE AS CATALYSTS AND CATALYST PRECURSORS

(57) Abstract: A chromium-containing catalyst is disclosed which includes both $ZnCr_2O_4$ and crystalline α -chromium oxide. The $ZnCr_2O_4$ contains between about 10 atom percent and 67 atom percent of the chromium in the composition and at least about 70 atom percent of the zinc in the composition, and at least about 90 atom percent of the chromium present as chromium oxide in the composition is present as $ZnCr_2O_4$ or crystalline α -chromium oxide. Also disclosed are a method for preparing this composition comprising $ZnCr_2O_4$ and crystalline α -chromium oxide; and a chromium-containing catalyst composition prepared by treatment of the composition comprising $ZnCr_2O_4$ and crystalline α -chromium oxide with a fluorinating agent. Also disclosed is a process for changing the fluorine distribution in a halogenated hydrocarbon, or incorporating fluorine in a saturated or unsaturated hydrocarbon, in the presence of at least one composition selected from the group consisting of (i) the $ZnCr_2O_4$ and crystalline α -chromium oxide compositions and (ii) the $ZnCr_2O_4$ and crystalline α -chromium oxide compositions which have been treated with a fluorinating agent.